

**Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
September 2001**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during September of fiscal year (FY) 2001 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT meeting was held on September 10, 2001. The discussion included 1) an update on ongoing TA-16-260 CMS activities; 2) a review of the recently-released seismic hazards program report on TA-16; 3) a review of TA-16-260 HPT work; 4) a discussion of the recent draft environmental covenant legislation and 5) a brief discussion of data quality objectives for groundwater in the TA-16 region.

The status of the CdV-R-37-2 well, the Interim Measure, and the CMS sampling were updated (see detailed discussion in the August CMS Progress Report and below).

The recent seismic hazards program document “Geology of the Pajarito Fault Zone in the Vicinity of S-Site (TA-16), Los Alamos National Laboratory” – LA-13831-MS was discussed. This document includes detailed structural mapping at TA-16 with a focus in the area of WETF. Overall, the observations presented in this report support the hydrogeologic conceptual model for the TA-16-260 outfall CMS. Fractures, fissures, and small fault zones were mapped by the Seismic Hazards team. These are consistent with the concept of ‘fast pathways’ included in the TA-16-260 conceptual model.

Draft outlines for the upcoming RFI Report and CMS Report were briefly discussed. Two alternatives discussed for the RFI Report are: 1) to continue the Phase II RFI Report, including the newly-derived information in new chapters and 2) using the RFI Phase II outline as the basis for the RFI Phase III Report. In either case, a goal would be to limit the repetition of material from the Phase II Report. The outline in the CMS Plan is the starting point for the CMS report outline. It was suggested that the main text of the CMS Report be brief, with detailed write-ups of Bench and Pilot studies provided in Appendices.

LANL personnel reviewed the past activities of the HPT and provided discussions of their look-ahead on FY 02 goals for the HPT. These goals include: evaluation of the data taken for the CMS to date with a goal of reducing data gathering that is not providing significant ‘value added’; 2) decisions as to the parameters and assumptions that will be used in the site-specific human health and ecological risk assessment; 3) discussions and

decisions concerning points of compliance, media cleanup standards, and other CMS issues; 4) interactions on the CMS and RFI Reports; and 5) and increased emphasis on public involvement. The HPT also discussed the schedule for the 260 CMS.

The implications of the draft environmental covenant act for the 260 CMS were discussed. The 260 HPT adopted a 'wait and see' approach to this document.

DQOs for upcoming wells at TA-16 were discussed. HWB expressed interest in intermediate-depth wells rather than an additional deep-groundwater well. This issue will be addressed again in future HPT meetings.

The next HWB meeting was scheduled for Tuesday October 9, 2001. Agenda items may include ecorisk results, a data update and a discussion of the RFI and CMS Reports.

RCRA Facility Investigation (RFI) Report and CMS Plan– No new activities occurred during this reporting period.

Best Management Practices (BMPs)– BMPs are inspected quarterly and following significant precipitation events. Due to recent rains at TA-16-260, BMP repairs were required including replacement of plastic sheeting over the HE troughs. These were initiated in late September.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. Quarterly sampling was completed. Several locations were dry including: the 90s Line Pond, the Fish Ladder seep, and the confluence of Canon de Valle and Water Canyon. Flow integrated sampling of the springs was unsuccessful due to equipment problems

Geophysical studies in Canon de Valle were initiated. Seismic studies were completed on three tranverse sections. Electrical studies were postponed until October due to equipment problems.

The wells, both alluvial and deep, were checked for both presence and level of water. Four out of five alluvial wells in Canon de Valle contained water, the uppermost well was dry. Shallow piezometers were installed near Burning Ground spring, downgradient from MDA-P, and near the Tshirege unit 2/3 contact. At all locations water has not yet been observed due to the low level of water in the alluvial system. No water was present in all three alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

Two samples from precipitation events were collected and archived for analysis during this reporting period.

Well development, hydrologic testing, and portions of Westbay installation were completed at the CdV-R-37-2 well. Development consisted of scrubbing, bailing and pumping to a level of less than 5 N.T.U. Hydrologic tests were performed on the deepest two screens, there was insufficient water for hydrologic testing in the uppermost two screens. The Westbay system was partially installed during September.

Ecological Risk Pilot–

A field visit was completed on September 21, 2001 to collect sediment and water samples for ecotoxicological analysis. Three locations in Canon de Valle and a background location in Starmer's gulch were sampled. The Canon de Valle locations were biased using XRF analyses for barium. These barium values were low, compared to similar data collected in 1996. Small mammal trapping in Canon de Valle was initiated.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for FY 02.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

Initial analytical results for the Stormwater Management system were received. The unit appears to be removing HE, but not barium.

Interim Measure (IM) –

Activities at the TA-16-260 IM were continued. The 12 rollofs of D003 waste were shipped to the Lake Charles Louisiana facility for treatment. Site restoration was continued including reseeding and grading.

Public and Stakeholder Involvement– None

Percentage of CMS Completed

LANL estimates 81 % of the CMS has been completed to date. Note that this percentage does not reflect the deep and potential intermediate wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

General Problem (1) The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

Action to Rectify General Problem (1): LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle are being addressed.

CMS Hydrogeologic Investigations

Problem (1): Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

CMS Bench and Pilot Studies

None.

IM

None.

Key Personnel Issues

None

Projected Work for October 2001

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.
- Finalization of replacement of plastic over TA-16-260 troughs

CMS Hydrogeologic Investigations

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Geophysical investigations and piezometer installation in Canon de Valle.
- Stream profiling
- Data analysis
- Finalization of Westbay installation for CMS well CDV-R-37-2.
- Site restoration for CMS well CDV-R-37-2

Ecological Risk Pilot

- The second round of small mammal trapping in Canon De Valle and Pajarito Canyon will be completed.

CMS Bench and Pilot Studies

- Evaluation of data from Stormwater units

IM

- Finalization of site-restoration activities
- Data analysis and writing of IM Report

Public and Stakeholder Involvement

A presentation on the 260 CMS will be made to the Santa Fe Geological Society